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Prolonged viral persistence in COVID-19 second trimester pregnant patient



Dear Editor,

We reported a 43-year-old gravida 3 para 2 pregnant woman without underlying disease at 18 weeks' gestation who presented with fever and chest discomfort. She contacted her husband who visited the boxing stadium where the COVID-19 outbreak occurred and was diagnosed with COVID-19 infection 2 days before she developed symptoms. Her vital signs were normal without fever and physical examination was unremarkable. Nasopharyngeal and throat swabs were positive for SARS-CoV-2 by reverse transcriptase polymerase chain reaction (RT-PCR) assays. Her investigations including complete blood count, renal function, serum electrolyte, liver function and urinalysis were within normal limits. Chest radiograph did not reveal any obvious active cardiopulmonary lesion. Rapid tests for influenza viruses and respiratory syncytial virus were negative.

She did not receive any specific treatments due to mild symptoms. Daily fetal heart rate was measured between 120–170 beats per minute. Nasopharyngeal and throat swab were conducted every two days. Her past antenatal history and ultrasonography from another hospital were unremarkable and amniocentesis was done one week before this admission due to high risk of aneuploidy by maternal age. Karyotype results which reported on the 10th day of admission demonstrated 47;XY,+21 and was diagnosed as fetal Down syndrome. Pregnancy termination was decided by the patient and her husband after a meticulous counselling session with an obstetrician.

She was clinically improved without fever. After two consecutive negative results of RT-PCR for SARS-CoV-2, four doses of 800 µg misoprostol vaginal suppository were given to terminate pregnancy on the 26th and 27th day of admission. Vaginal delivery was successfully done without any immediate complications. The result of RT-PCR for SARS-CoV-2 from placental swab, fetal nasopharyngeal and throat swab were negative. Fetal autopsy was not done but placenta examination performed by a gynecological pathologist did not reveal definite viral inclusion, organism or extraplacental membrane inflammation. Sampling placental tissues revealed dysmorphic villi which may clinically resulted from fetal Down syndrome.

Most published studies of COVID-19 in pregnancy are reported in the third trimester [1]. Currently, only two brief cases of mild infection in the late second trimester [2] and one case of miscarriage in the early second trimester [3] were reported. In our report, the clinical characteristics of COVID-19 in this early second trimester pregnancy are indifferent from reports of non-pregnant patients [4]. There are no obvious immediate effects to the fetus after prolonged maternal SARS-CoV-2 infection for three weeks in the second trimester which demonstrated by positive fetal heartbeat and

unchanged ultrasonographic result. Pregnancy-related adverse events did not occur during infection of this patient such as premature labor or premature rupture of membrane. Therefore, we observed that pregnancy did not aggravate COVID-19 and the prolonged infection did not cause pregnancy complications in this patient as well. To eradicate infection, specific treatment was not essential in pregnant patients with mild symptoms similarly to non-pregnant patients with only addition of fetal monitoring.

Unfortunately, our report cannot exclude vertical transmission since no fetal specimen was collected during infection period but placental pathology revealed no morphological change related to infection which is similar to previous report [5]. However, the recent study detected SARS-CoV-2 in placenta with inflammatory histological changes [3]. Hence, further studies are required to provide more evidence about infection during second trimester pregnancy and its maternal and fetal consequences.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- [1] Della Gatta AN, Rizzo R, Pili G, Simonazzi G. COVID19 during pregnancy: a systematic review of reported cases. *Am J Obstet Gynecol* 2020, doi:<http://dx.doi.org/10.1016/j.ajog.2020.04.013> S0002-9378(20)30438-5.
- [2] Liu Y, Chen H, Tang K, Guo Y. Clinical manifestations and outcome of SARS-CoV-2 infection during pregnancy. *J Infect* 2020, doi:<http://dx.doi.org/10.1016/j.jinf.2020.02.028> S0163-4453(20)30109-2.
- [3] Baud D, Greub G, Favre G, et al. Second-trimester miscarriage in a pregnant woman with SARS-CoV-2 infection. *JAMA* 2020, doi:<http://dx.doi.org/10.1001/jama.2020.7233> Published online April 30.
- [4] Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med* 2020;382(18):1708–20, doi:<http://dx.doi.org/10.1056/NEJMoa2002032>.
- [5] Chen S, Huang B, Luo DJ, et al. Pregnant women with new coronavirus infection: a clinical characteristics and placental pathological analysis of three cases. *Zhonghua Bing Li Xue Za Zhi* 2020;49(0):E005.

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